

33. The valve assembly of claim 23, wherein said stem member is designed and dimensioned to selectively facilitate the flow of the fluid when said actuation portion is pushed with a force of about 3 grams.

34. The valve assembly of claim 24, wherein said stem member has a length of about 0.42 inches.

35. The valve assembly of claim 34, wherein said base fluid channel has a width of about 0.205 inches.

36. The valve assembly of claim 34, wherein said top surface of said stem member has a width of about 0.200 inches.

*Rule 2.126*  
~~37~~ 36. The valve assembly of claim 34, wherein said spring member has an outer diameter of about 0.188 inches.

~~38~~ 37. The valve assembly of claim 34, wherein said spring member has a load force when compressed to a length of 0.255 inches in the range of about 18.8 to 25.8 grams.

~~39~~ 38. The valve assembly of claim 23, wherein said upper member is formed of polypropylene.

~~40~~ 39. The valve assembly of claim 23, wherein said sealing member is formed of silicone rubber.

~~41~~ 40. The valve assembly of claim 23, wherein said upper member is friction fit to said base.

~~42~~ 41. The valve assembly of claim 23, wherein a part of said stem member is disposed within said base fluid channel.

~~43~~ 42. The valve assembly of claim 23, wherein said valve assembly is disposable.

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~~43.~~ A valve assembly comprising:

- an upper member having a piercing member and a connecting member, said upper member having a fluid channel defined therethrough;
- a base having a base fluid channel defined therethrough, wherein said base is designed to be matingly coupled to said upper member;
- a stem member designed and dimensioned to be disposed in part within said base fluid channel, said stem member having an actuation portion and having a top portion having a lower surface;
- a sealing member integrally formed with said upper member and disposed in said base fluid channel, said sealing member having a flow aperture and a sealing member bottom surface, said sealing member being designed and dimensioned to facilitate sealing of said flow apertures when said sealing member bottom surface abuts a top surface of said stem member;
- and
- a spring element disposed within said base fluid channel;
- wherein a portion of said spring element abuts said lower surface to apply a biasing force to said stem member.

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~~44.~~ A valve assembly for delivering a fluid from a fluid bag to an animal caging system for housing an animal, the valve assembly comprising:

- an upper member having a piercing member and a connecting member, said upper member having a fluid channel defined therethrough;
- a base having a base fluid channel defined therethrough, wherein said base is designed to be matingly coupled to said upper member;
- a stem member designed and dimensioned to be disposed in part within said base fluid channel, said stem member having an actuation portion and having a top portion having a lower surface; and
- a spring element disposed within said base fluid channel;
- wherein a portion of said spring element abuts said lower surface to apply a biasing force to said stem member, and said spring element comprises at least one group of dead coils, thereby facilitating prevention of a tangling of a plurality of spring members when said spring members are arranged during the assembly process.

~~41b~~ ~~45~~  
~~45~~. The valve assembly of claim ~~44~~, wherein said spring element comprises three groups of dead coils, one of said groups being located at the center of said spring element, one of said groups being located at a first end of said spring element, and one of said groups being located at a second end of said spring element.

~~47~~ ~~46~~  
~~46~~. A valve assembly of claim ~~45~~, further comprising:  
a sealing member integrally formed with said upper member and disposed in said base fluid channel, said sealing member having a flow aperture and a sealing member bottom surface, said sealing member being designed and dimensioned to facilitate sealing of said flow apertures when said sealing member bottom surface abuts a top surface of said stem member.

~~48~~ ~~47~~  
~~47~~. The valve assembly of claim ~~46~~, wherein said sealing member bottom surface comprises a lower ridge extending therefrom, said lower ridge being designed and dimensioned to facilitate the concentration of said biasing force from said spring member to seal said flow aperture.

~~49~~ ~~45~~  
~~48~~. The valve assembly of claim ~~44~~, wherein said stem member is designed and dimensioned to selectively facilitate the flow of the fluid when said actuation portion is pushed.

~~50~~ ~~45~~  
~~49~~. The valve assembly of claim ~~44~~, wherein said stem member is designed and dimensioned to selectively facilitate the flow of the fluid when said actuation portion is pushed with a force of less than or equal to 5 grams.

~~51~~ ~~45~~  
~~50~~. The valve assembly of claim ~~44~~, wherein said stem member is designed and dimensioned to selectively facilitate the flow of the fluid when said actuation portion is pushed with a force of less than or equal to 3 grams.

<sup>52</sup>  
~~51~~. A method of assembling a valve assembly for delivering a fluid from a fluid bag to an animal caging system for housing an animal, the method comprising:

- coupling an upper member having a piercing member to a base having a base fluid channel defined therethrough;
- disposing a stem member in part within said base fluid channel, said stem member having an actuation portion and a top portion having a lower surface;
- disposing a sealing member in said base fluid channel, said sealing member having a flow aperture and a sealing member bottom surface, said sealing member being designed and dimensioned to facilitate sealing of said flow apertures when said sealing member bottom surface abuts a top surface of said stem member.
- disposing a spring element within said base fluid channel, wherein a portion of said spring element abuts said lower surface to apply a biasing force to said stem member, and wherein said spring element comprises at least one group of dead coils, thereby facilitating prevention of a tangling of a plurality of spring members when said spring members are arranged during the assembly process.

<sup>53</sup>  
~~52~~. The method of claim ~~51~~ <sup>52</sup>, wherein said spring element comprises three groups of dead coils, one of said groups being located at the center of said spring element, one of said groups being located at a first end of said spring element, and one of said groups being located at a second end of said spring element.

<sup>54</sup>  
~~53~~. The method of claim ~~52~~ <sup>52</sup> wherein said sealing member bottom surface has a lower ridge extending therefrom, said lower ridge being designed and dimensioned to facilitate the concentration of said biasing force from said spring member to seal said flow aperture.

<sup>55</sup>  
~~54~~. The method of claim ~~53~~ <sup>52</sup>, wherein said stem member is designed and dimensioned to selectively facilitate the flow of the fluid when said actuation portion is pushed.

<sup>56</sup>  
~~55~~. The method of claim <sup>52</sup>~~51~~, wherein said stem member is designed and dimensioned to selectively facilitate the flow of the fluid when said actuation portion is pushed with a force of less than or equal to 5 grams.

<sup>57</sup>  
~~56~~. The method of claim <sup>52</sup>~~51~~, wherein said stem member is designed and dimensioned to selectively facilitate the flow of the fluid when said actuation portion is pushed with a force of less than or equal to 3 grams.